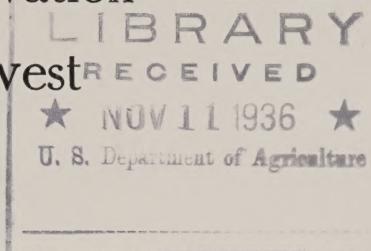


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Soil and Water Conservation in the Pacific Northwest



Proper use of crop residues will aid in controlling erosion

U. S.

SOIL CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE

REGION 11

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WASHINGTON

CONSERVATION OF SOIL AND WATER IN THE PACIFIC NORTHWEST

THEN AND NOW

Sixty years ago, much of the region lying between the Rockies and the Cascades was a great cattle range while vast stands of stately evergreens dotted with scattered settlements extended to the Pacific.

For the most part the soils were rich. For countless centuries grasses and forest giants had grown vigorously and pushed their roots deep (fig. 1). Each fall the plants returned abundant supplies of



Figure 1.—Proper woodland management and prevention of destructive fires is essential in maintaining a permanent lumber and fuel supply.

organic matter to the soil. Upon decomposing, this humus rendered the soil porous and absorbent of water from melting snows and early spring rains. This soil water refreshed the range grasses, fed the springs and the streams, and filled the water holes. In those days little topsoil was lost from the grass-covered range; and the little

soil that washed away was replaced by the slow processes of soil formation building from beneath. Likewise, the moss and leaves formed a protective blanket for forest soils. But with the slashing of forests and the coming of the cattlemen, Nature's balance was upset, and the grazing lands suffered.

Unrestricted numbers of cattle and sheep ranged the country, competing keenly for the grass. They cropped it to its roots, stunting its growth, and the grass thinned out. Trees were cut, and forests were ravaged by fire (fig. 2). More and more water from the melting snows and early spring rains washed over the surface, instead of seeping into the soil, carrying with it a load of soil. After a while, because of continued overgrazing, much of the bunchgrass succumbed



Figure 2.—Reforestation and proper forest management is necessary to check run-off and erosion and to maintain forest productivity.

to the invasion of cheatgrass and other weeds, and the productive capacity of the range declined until now it is hardly more than a fifth of what it once was (fig. 3).

As a result of this loss of moisture by surface run-off from barren mountain ridges and overgrazed ranges, streams flowed more violently in the spring and shrunk to a trickle in the summer. Water holes, springs, and streams dried early in the season, and water supplies dwindled on the range and in city reservoirs.

In those sections of the region most favored with rainfall, farmers displaced the cattlemen. They broke the sod and discovered a great wheat country. Yields were huge, and the lands produced each year unfailingly until the supply of organic matter in the soil began to give out; for the system of wheat farming made no provision,

as Nature had, for replenishing the organic content of the soil. The stubble was grazed off or was burned because it could not properly be handled with the tillage tools of the day. The rich topsoil gradually became more compact and less pervious to water, and the soil no longer made the best use of the limited rainfall.

New systems including fine tillage further aided the forces of erosion. The soil lay through the winter, fallow and bare, its surface finely mulched. As the snows melted and spring rains came, there was nothing to obstruct the flow of water from the slopes, and as it flowed it washed away the soil (fig. 4). Similarly, deforested mountains and open ranges stripped of protective bunchgrass lay bare as soil and water losses increased.



Figure 3.—Severe overgrazing characteristic of vast areas in the Northwest renders the land highly susceptible to floods, sheet erosion, and gullying. Only immediate regulation of grazing will save such lands from total destruction.

CONTROL DEMONSTRATED

To answer the question of "what's to be done", the Soil Conservation Service demonstration areas were planned. Whole watersheds, 25,000 to 150,000 acres in extent, were chosen in representative regions. It is on these areas, of which there are a number in the Northwest, that you may see, rather than simply read about, the new developments in methods of controlling soil erosion. The Service invited the farmers in these selected areas to take part in this demonstration enterprise. Most of them agreed to do so, and the program got under way 3 years ago. In return for technical assistance from the Service and the manual assistance of the Civilian Conservation Corps,

the farmers who signed cooperative understandings agreed to follow for a period of 5 years certain recommended erosion-control practices. These demonstration areas are now 1 to 3 years old and certain transformations in the agriculture have come about. The Soil Conservation Service wants you to visit one, and see for yourself the changes that have occurred. You are invited to pay a call, to talk to the farmers who have taken part in the demonstration program and learn what they think about the value of the erosion-control measures

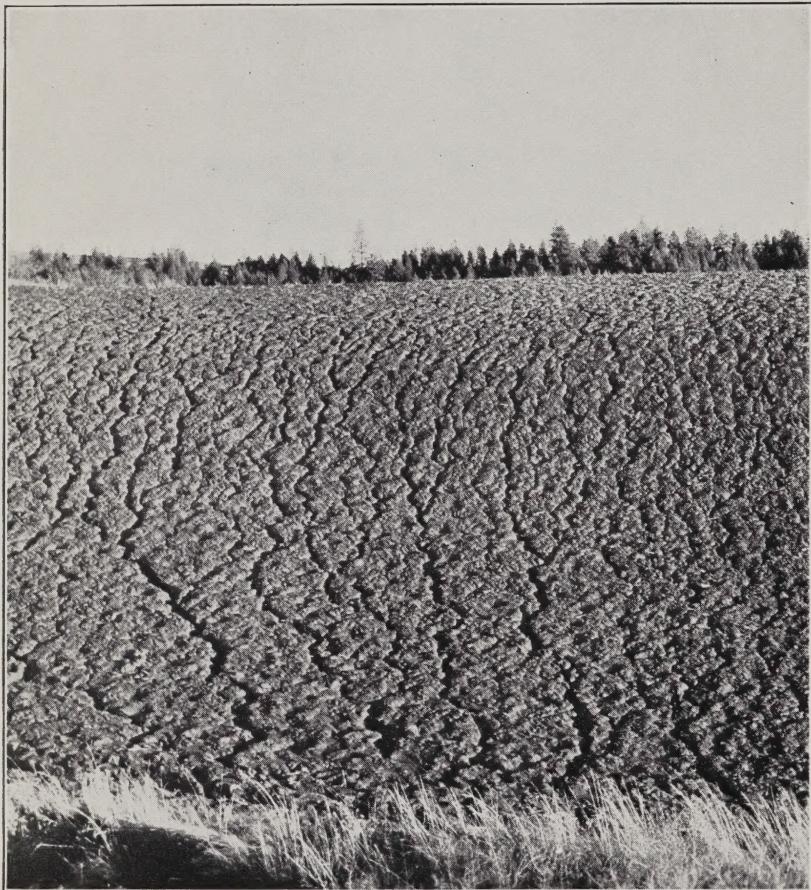


Figure 4.—Sheet erosion on unprotected slopes is rapidly lowering the productivity of Northwest lands.

that have been applied to their farms. When you come bring your neighbors. The Service feels that you will be well repaid for your visit.

A PRACTICAL PROGRAM

A practical erosion-control plan to fit each farm is the keynote of the Soil Conservation Service program—a plan which is worked out in cooperation with the farmer himself—a plan designed to restore the

balance of nature which man has destroyed. Such a program is already under way on numerous farms in representative watersheds in Washington, Oregon, and Idaho.

It is an accepted fact that such a program must be based upon vegetative control. A vegetative covering is necessary on the ridges and steep slopes to prevent the continuance of devastating erosion. This part of the farm has the lowest yield per acre although the farming expense is highest. Thus, the Soil Conservation Service plan of planting legumes and grasses on these areas is both practical and profitable since they not only check erosion and run-off but rebuild the soil.

Soil-building crop rotations and utilization of crop residues will greatly reduce run-off and erosion on the moderate slopes. The gently sloping land is generally the most productive and should therefore be kept in cultivation for the production of cash crops. We must, however, protect these highly productive slopes from excessive run-off and washing.

The planting of trees will be encouraged. Since their value in checking erosion and as shelterbelts is recognized, valuable trees which are adapted to the various sections should play an important part in the practical land-use program to build soil and prevent erosion. They will serve as an answer to the problem of the utilization of certain lands not profitable for cultivation.

With the unprofitable slopes again covered with permanent vegetation and with the profitable land being protected and built up, we shall have restored the balance of nature—a balance which shall mean a more permanent and profitable agriculture—a balance which shall mean a more permanent water supply and a decrease in the damage wrought by floods and silting. A conservation program to restore this balance is one of common-sense management of our forested, cultivated, and grazing lands.

